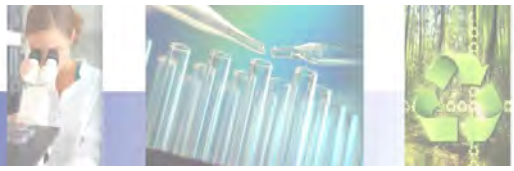
FP7-ENV-2007-CSA-1.2.3-01 Grant Agreement 219 337

ERA-ENVHEALTH

MONTHLY NEWSFLASH



THIS MONTH'S NEWS:

DECEMBER 2010 / JANUARY 2011

REMINDER:

NEXT DEADLINES

- **End of February 2011: report on prioritization criteria and list of prioritised areas**
- **End of February 2011: financial and scientific reporting for the M12 to M30 period to prepare the EC report**
- **30 march 2011: EC review meeting**

SEASON'S GREETINGS AND 1-YEAR ANNIVERSARY OF OUR NEWSFLASH

Best wishes from the ERA-ENVHEALTH team. May 2011 bring joy, happiness, good health and success in all your endeavours. We are again really looking forward to another year of fruitful and enjoyable collaboration in ERA-ENVHEALTH.

However, before we look towards the future, lets have a quick look back at our accomplishments in 2010:

- Two years into the project and already a number of reports published on our website, in particular WP1 report providing an overview of the programmes & projects including synthesis & recommendations, and the report on the management & scientific evaluation issues encountered during the first call.
- An E&H research database with information on nearly 500 projects, 50 programmes and 40 programme-managing organisations.
- An expert database with 53 experts of many different nationalities.
- A successful first call with 2 funded projects on Climate change and health.
- The introduction of our **monthly newsflash,** born from an EAC recommendation, to keep updated on the project progress and important news.

And now for our new year's resolutions and look ahead for 2011:

- First of all, lets continue communicating and not forget to actively take part in disseminating our project achievements.
- Lets also continue thinking about how we could improve our results & impact. Our second EC periodic review will be held end of March 2011. This time, it includes a meeting with the reviewer which should provide ideas on how to make the most of the ERA-ENVHEALTH projects and its results.
- The introduction of a new task, also born from an EAC recommendation, to actively integrate policy relevance into the project.

- The finalisation of the report on prioritisation criteria...

An exciting year to come and again many thanks to those who make the ERA-ENVHEALTH project possible.

The research leading to these results has received funding from the European Community's Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 219 337.

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NEW TASK: BRIDGING SCIENCE & POLICY AND FORMULATING EU-WIDE PRIORITIES FOR COLLABORATIVE E&H RESEARCH — AMENDMENT REQUEST

The ERA-ENVHEALTH partners and External Advisory Committee, further to the discussions carried out during the project's annual General Assembly meetings in September 2009 and September 2010, and its first external evaluation at M12, decided to suggest the introduction of a new task under WP1.

The amendment request is in full swing. The description of the new task, its calendar and deliverables is being inserted in the Updated Annex I (Description of Work) and it will be submitted together with the amendment request in January 2011.

This new task responds to a perceived lack of attention flagged up in the Description of Work on policy-relevance and support and how ERA-ENVHEALTH can contribute to providing support for the trans-national or trans-regional coordination of E&H research efforts according to E&H policy needs. ERA-ENVHEALTH provides the ideal forum to explore these issues, as it brings together 16 partners financing EH research, a number of which are also policy-makers. Therefore, the new task is proposed to expand on the work already carried out within WP1 by focusing on specific topics and providing more details to the WP1 analysis with regard to the links between research and policy action: **Task 1.3: Bridging science and policy in environment and health and formulating EU-wide priorities for collaborative E&H research.**

This new task's aim is to investigate the link between policy and research in E&H and suggest recommendations to improve the uptake of scientific results in policy-making and provide a policy framework linked to E&H research and in particular to the ERA-ENVHEALTH joint activities to be carried out in WP3. It involves two subtasks:

- An analysis of the process of linking research to policy in E&H
- Formulating EU-wide priorities for collaborative E&H research

The work to be carried out under this new task does not involve a modification of the overall estimated project direct costs and does not change the requested EC contribution. However, funds will be redistributed among the different project partners. This redistribution will be carried out using non-spent funds available in partners reserve and cashflow, as voted during the September 2010 GA meeting.

ANSES: FUNDING FOR RESEARCH INTO ENVIRONMENTAL & OCCUPATIONAL HEALTH & SAFETY: €5M FOR 44 RESEARCH PROJECTS IN 2010

ANSES has published the results of its call for research projects for 2010. 44 projects have been chosen for a total of 5M€, financed jointly with INCa, ADEME & the Ecophyto 2018 Plan. This annual call for projects is dedicated to the fields of occupational and environmental health & safety. It is a key resource by which the Agency pursues its mission for risk assessment related to work & the environment. ANSES thus demonstrates its commitment to maintaining this imaginative procedure to respond to risk assessment needs.

The 2010 call for projects has been very successful, as the number of applications again increased, reaching 147 compared with 118 in 2009. To meet the demand, several partner organisations joined ANSES to finance themes of shared interest. The funds available for the call for projects were thus increased to 5M€: 2.5M€ allotted to ANSES by the Ministries responsible for environment & employment, and 2.5M€ from the call's co-financers: ADEME, INCa & the Ecophyto 2018 Plan.

ANSES will be financing 26 of the projects chosen, which deal particularly with reproductive disorders and endocrine disruptors due to exposure to contaminants in water, nanoparticles and radiofrequencies. As a co-financer, INCa is supporting 8 projects (3 of which are feasibility studies) to characterise the behavioural and environmental risks which may lead to cancer. ADEME will finance six projects in the field of environmental health that are relevant to its usual work, concerning waste; bio-aerosols from industrial composting; risk assessment related to organic contaminants in the ground; traffic-related emissions; & indoor air quality. Finally, 4 projects were chosen for funding under Theme 3 of the Ecophyto 2018 Plan, on the impact on human health of exposure to pesticides.

ANSES is eager for the public to reap the benefits of this research and organises a *'Rencontres scientifiques' (Scientific Outreach)* event twice a year to allow the research teams to publicise their work.

UPCOMING MEETINGS

- **25 JANUARY 2011: 10TH WP LEADER CONFERENCE CALL**
- **28 MARCH 2011: EXCEPTIONAL GA MEETING IN PARIS, FRANCE**
- **29 MARCH 2011: EC REVIEW MEETING IN PARIS, FRANCE**
- **30 MARCH 2011: WORKSHOPS ON THE SECOND CALL AND THE NEW TASK ON BRIDGING SCIENCE & POLICY IN PARIS, FRANCE**

PLEASE INFORM US OF IMPORTANT E&H MEETINGS OR REPORTS

ENHANCE: RISK ASSESSMENT OF THE IMPACT OF CLIMATE CHANGE ON HUMAN HEALTH AND WELL-BEING

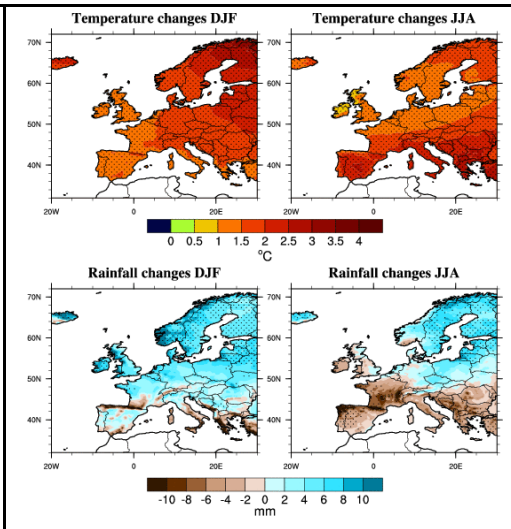
This project aims to provide a realistic assessment of the impact of climate change on human and animal health. It takes a bottom-up approach: it begins by considering all possible pathogens, and then filters for those that have significant impact on human and animal health, affect or threaten Western Europe, and are sensitive to weather/climate and may therefore be affected by climate change. Questions asked include: How realistic is the threat to human & animal health from climate change's effects on infectious diseases? Will most diseases respond to climate change or just a few? Will there be a net increase or decrease in disease burden? Is it possible that the diseases 'that matter most' are the least likely to respond to climate change? How will society respond to these threats? What do we think will really happen?

A database of all human and animal pathogens (the Enhanced Infectious Disease Database), with 5000 entries, is approaching completion. A framework for assessing the impact of human and animal diseases has been developed, including a major innovation – the calculation of the H-index for 1,400 pathogens (to date) as an indicator of societal interest in them. We have shown that for high H-index pathogens, there is a significant correlation between H-index and a true measure of impact, the Disability Adjusted Lost Years or DALY. We have developed techniques for extracting data on pathogens from the millions of papers held on bibliographic databases, and which will be fed through our disease prioritization framework.

The climate variables most desired for modelling diseases are rarely the same as those that are generated by climatologists interested in our future climate. Therefore, variables from climate change projections need to be tailored for epidemiological use. We have obtained a high resolution (25km^2) gridded climate dataset for Europe based on station measurements within the EC FP6 ENSEMBLES project framework. Important climatic impact variables, including rainfall, temperature, minimum and maximum temperatures, are available over Europe for the period 1950-2008 at daily temporal resolution. We have also obtained simulated climate variables, for the same past period, and for the future (to 2050) from the same source. These variables are now being tailored for our use in disease modelling.

We have explored the utility of automated literature search as a means of identifying links between climate and specific pathogens. A preliminary study demonstrated that a randomly selected group of emerging viral and protozoan pathogens had a higher frequency of climate-associations in retrieved publications than did non-emerging counterparts; indicating that climate may be an important driver of emergence and that it may be detectable by literature search. We are developing detailed spatiotemporal models for the future risk of both bluetongue (an animal disease) and malaria in Europe.

Projections of future disease risks can take many forms. Results can be presented for different time periods; risk assessments can be quantitative or qualitative; disease models can be statistical or process-based; and simple and easy to understand, or more complex and impenetrable; and outputs can be driven by climate change alone, or by other disease drivers as well. In order to adapt this project's outputs for stakeholders we held a meeting in London in January 2010 with a number of national and international agencies; they were presented with a range of options and informed us of the format of project outputs that would be most useful to their agencies.



Upper row: Simulated winter (left) and summer temperature mean future changes (°C).

Lower row: Simulated winter (left) and summer rainfall mean future changes (mm).

These differences are computed between the time slices 2030-2050 and 1961-2000. The multi-model ensemble mean is depicted in shading and the sign consistency across the different models (80% of the models agree on an increase or a decrease) is shown by the black dotted area.

ENVIRONMENTAL CHANGE AND RISING DOC TRENDS: IMPLICATIONS FOR PUBLIC HEALTH

The start-date was June 1, 2009, for the UK and French partners and July 2010 for the Netherlands team. The management of the project is working well with a kick off meeting held in Paris on April 8, 2009, a second meeting in Bangor on December 2-3, 2009 and a third planned for September 22-23 in Utrecht. The overall progress of the programme has been satisfactory despite the delays in the involvement of the Netherlands team (due to administrative problems). During the first year of the project, The UK and French teams have made good progress in:

- establishing the main analytical techniques that will be needed during the course of the project. The UK team (Bangor), has designed a methodology for separating dissolved organic carbon (DOC) into its component fractions, to identify those most responsible for the formation of disinfectant by-products. Analytical results were obtained as µg/mg of each THM component analysed and recalculated to represent the THM formation potential of the raw sample (µg/L Figure 4). The results illustrate the changes in the monthly THM formation potential of the waters, whilst further analysis of the fractionated samples reveals those molecular weights with significant THM formation potential. The French partner has developed a new procedure based on the use of the UV spectra second derivative to characterize the origin of anthropogenic organic matter in an agricultural environment (soil, cattle manure, pig slurry) in Rennes.

- studying reservoir DOC responses to changing climatic conditions with a new detailed survey of water chemistry and disinfectant by-product formation in 3 reservoirs (and a highly monitored control lake) in UK. Sampling sources were selected to represent diverse catchment types in September 2009 and include a lowland fen, an upland bog, a glacial lake and an upland isolated lake. Ongoing analyses suggest differences between sites and over time in both DOC quantity and DOC quality. Some source waters are relatively low in [DOC] but have relatively large proportions of DOC with high UV absorbance.

- selecting, and equipping an agricultural site in Brittany in order to acquire data from rainfall events in terms of runoff and TOC / DOC export. 15 events have been monitored between September 2009 and March 2010 and the analysis of two major ones, an intense shower in Autumn (Nov. 8, 2009) and a storm in February (Feb. 27-28, 2009) have shown an exceptionally high DOC load for the shower and a huge increase of TOC during the storm, occurring one month after spreading. Moreover, fractionation of runoff samples collected for a plot fertilized with pig slurry has shown a relationship between the rainfall intensity and solid transportation (mainly under colloidal form).

- analyzing the existing UK datasets to explain anomalies of deposition based (SO_4^{2-} and Cl^-) model during droughts, and the French database both for natural and drinking water in relation to climatic conditions and compliance with drinking water standards. A UK team (CEH) has updated the best available long-term chemical time series, and begun to develop climate datasets to be applied in the statistical analyses of DOC trends and shorter term variability. It provides an indication of sensitivity of DOC concentrations and export to elements of climate that are expected to respond to the long term effects of global warming. In the next phase of data analysis we aim to determine the extent to which these secondary deviations can be explained by variations in temperature, rainfall and soil moisture using mixed effects modelling approaches. The results of the French database exploitation for small scale water services, shows that flow and temperature variations have a major impact on water quality. For example, the probability of exceedance of French TOC regulatory standards is highest for low or high flow rates (< 10%Qm or >Qm) associated respectively with high or low water temperatures (> 12°C or between 5 and 12°C).

Moreover, the research undertaken has led to several works prepared for peer-reviewed journals (2 published, 5 under review and 5 in prep.) and the presentation of 6 communications at international conferences.

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